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CLS Synchrotron:
Big Science Helping Small Business

By Shirley Collingridge

Ten years after the start of its construction in Saskatoon, the Canadian Light Source (CLS), Canada's national centre for synchrotron research, remains in the limelight. The CLS employs light a million times brighter than the sun to solve seemingly impossible puzzles. This remarkable tool has the potential to revolutionize business, ranging from sole proprietorships to multinationals in every field.

With its ability to function at the molecular level, the synchrotron's capabilities appear limitless: from defining the enzyme the Norwalk virus uses to replicate its genetic code, to identifying minute metal contamination in mine tailings, to examining live animals.

Jeff Cutler, CLS Director of Industrial Science, calls the province's synchrotron the "cadillac of research tools" because it is one of the most advanced of 45 such facilities worldwide. Radio frequency waves and powerful magnets accelerate electrons close to the speed of light, producing extremely bright synchrotron light. Scientists control the wavelength at user-end stations to reveal the microstructure and chemical properties of a range of materials.

CLS Industrial Staff Scientist Julie

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Photo: Cal Fehr

CLS Director of Industrial Science Jeff Cutler (at right) and Industrial Staff Scientists Julie Thompson and Jeff Warner are showing Saskatchewan businesses and entrepreneurs how they can use the "Cadillac of research tools": a beam of light a million times brighter than the sun.

The (High) Definition of Success

By Elaine Carlson

When long-time and prospective clients stop by the office of Reed Security in Saskatoon or its Internet home at reedsecurity.com, they can't miss noticing something.

The 10-year-old locally-owned security firm has distinguished itself in a series of business award categories over the past few years that attest to the company's commitment to service. In a marketplace dominated by security giants with multi-million dollar promotional budgets, Reed Security most recently was named a 2010 SABEX finalist in both the Small Business of the Year and Customer Service award categories. Reed Security was also named Small Business of the Year by the North Saskatoon Business Association (NSBA) and a finalist in NSBA's New Direction Award category.

Owner Virgil Reed couldn't be happier.

"We used to be the third quote when businesses were shopping around for a security firm. Now we've become the standard against which they measure others. It's definitely helped us increase sales. Now we have over 2,500 clients in Saskatoon and area."

Dedication to customer service had made the difference to Reed Security. "There's very fierce competition in the security business for alarm sales," he says.

"You can try to offer the lowest prices, and we do; we're the only security company in Canada with a five-dollar monthly monitoring fee for the first year. But the solution for us has been our ability to provide custom solutions to our clients instead of just being an alarm dealer. That's where our biggest growth is now."

When a client comes to Reed Security with a particular security challenge, Reed and his team spring into action, researching products until they can recommend a customized solution. "We can do this because we're small and flexible and not tied into to a specific security product or protocol."

That–and the ability to shop the world via the Internet–means that Reed Security clients now have access to an astonishing array of security possibilities, from rapid response intrusion monitoring to fire, medical, flood, temperature, or carbon monoxide emergencies and more. "The newest thing we're offering is high

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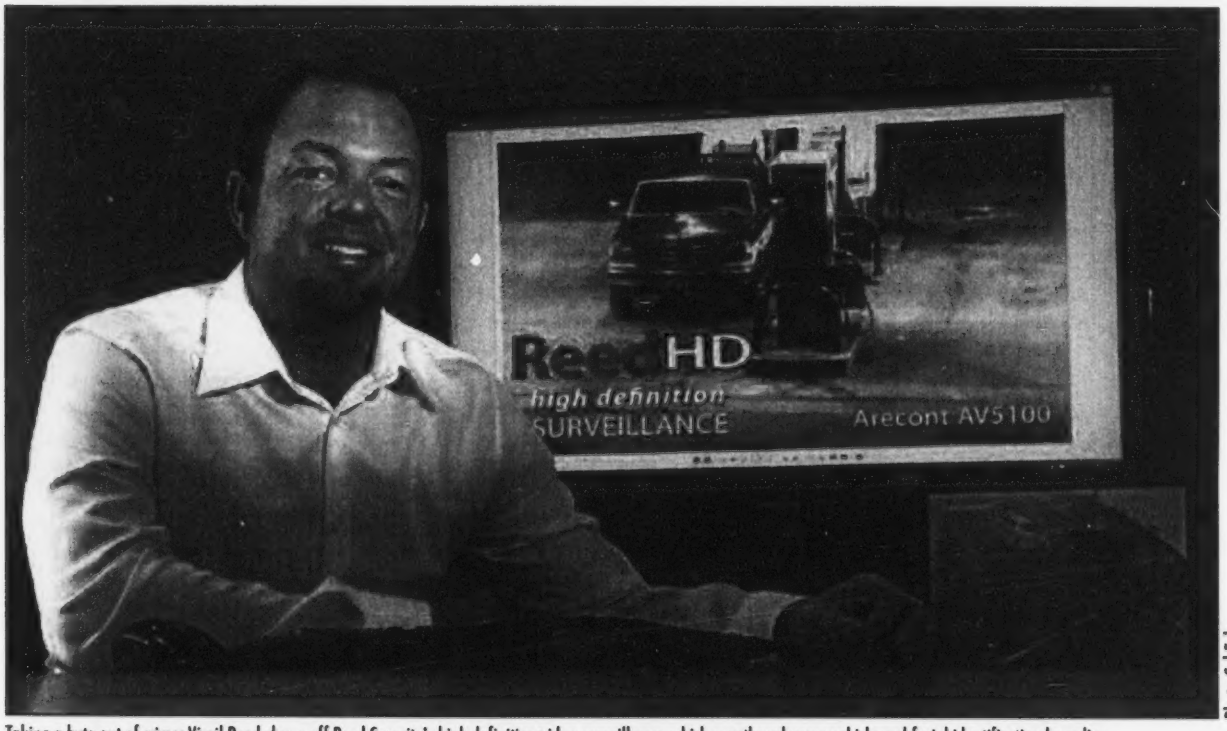

Photo: Cal Fehr

Taking a byte out of crime: Virgil Reed shows off Reed Security's high-definition video surveillance, which greatly enhances vehicle and facial identification by police.

West Central Pelleting's General Manager Dean Skinner has his hands full with more than just the Wilkie company's growing customer base.

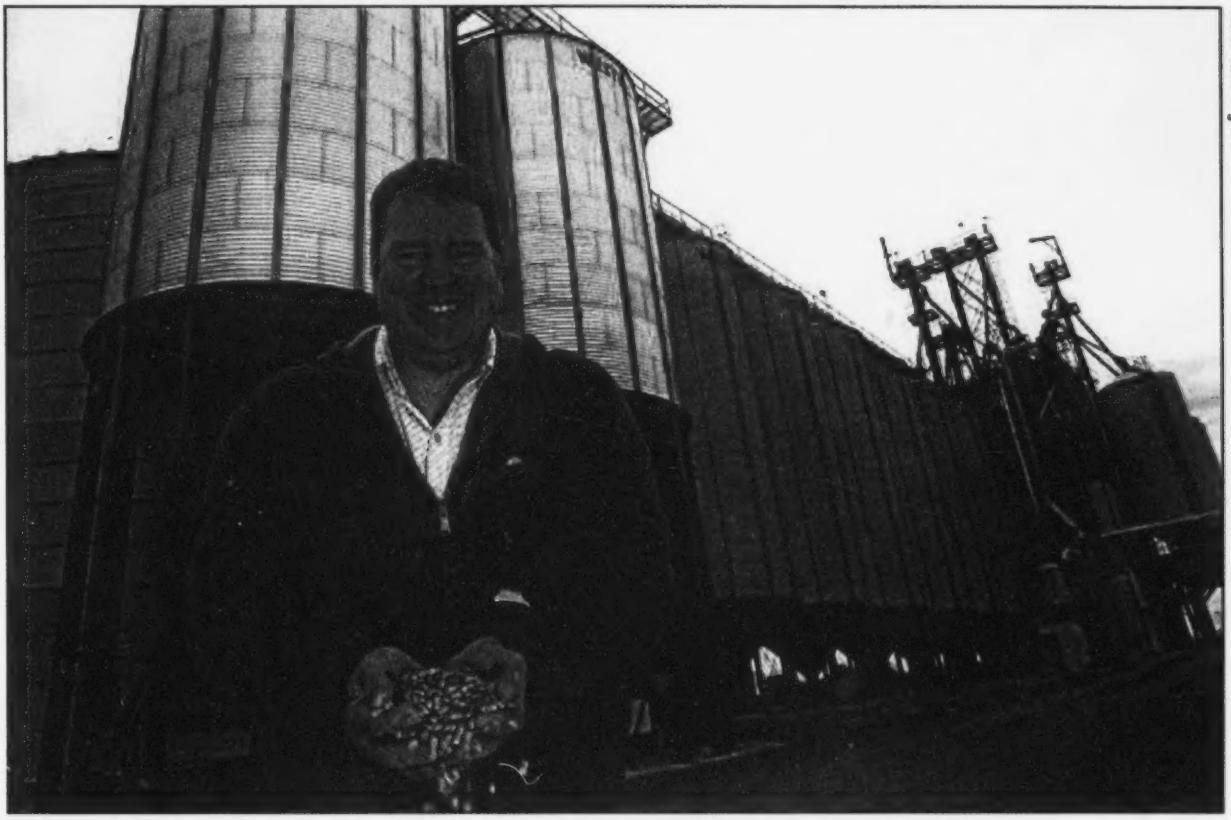

Photo: Kevin Hogarth

Community Venture Aims to Help Stabilize Wilkie Economy

By Dave Yanko

West Central Pelleting Ltd. grew out of an initiative to reverse a troubling trend in rural Saskatchewan communities like Wilkie.

"Back in the 1990s, a lot of people were talking about the decline of rural Saskatchewan and it was a very big issue in Wilkie," explains Dean Skinner, general manager of the joint community venture feed enterprise.

"We had lost a hospital and a number of other government-related services, and that created a shrink in the town. People were looking for business opportunities to sustain the town—to sustain employment in the town."

As it happened, it was Dean's mother Margaret Skinner who came up with the idea of a feed pellet facility capitalized through a community venture share offering. Some 570 people—a mix of rural and town residents from throughout the region—purchased enough shares to raise the $1 million required to construct the plant, and West Central Pelleting was born in 1998. Several years later, the company launched a second share offering in the Wolseley region of southeast Saskatchewan, and West Central opened a similar facility in the town of Wolseley in 2002. Today, the community venture employs a total of about 30 people and generates annual revenues of approximately $15 million.

Skinner says the feed plant idea grew out of the practise by rail companies of charging farmers dockage fees for the unwanted material screened from their

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Saskatchewan Company Leads World in Tank Manufacturing Technology

By Virginia Wilkinson

A Saskatchewan tank manufacturing company has recently taken a unique "high-tech" approach to its business– AGI Environtank is one of the only tank manufacturers in the world using a unique leading-edge technology in the construction of steel storage tanks.

Based in Biggar, Saskatchewan, the company was created in 1993 by Dave Burton, Wayne Broeckel and Herb Ford. In 1997, Dave Burton's son Jeff Burton and Ken Kernohan also b[illegible]me share holders.

AGI constructs tanks for service stations and oil fields. Originally the tanks were built using teams of welders, but in the province's boom years between between 2006 and 2008, AGI experienced difficulty finding enough employees to fill all of its orders. As a result it began looking for an automated equipment solution.

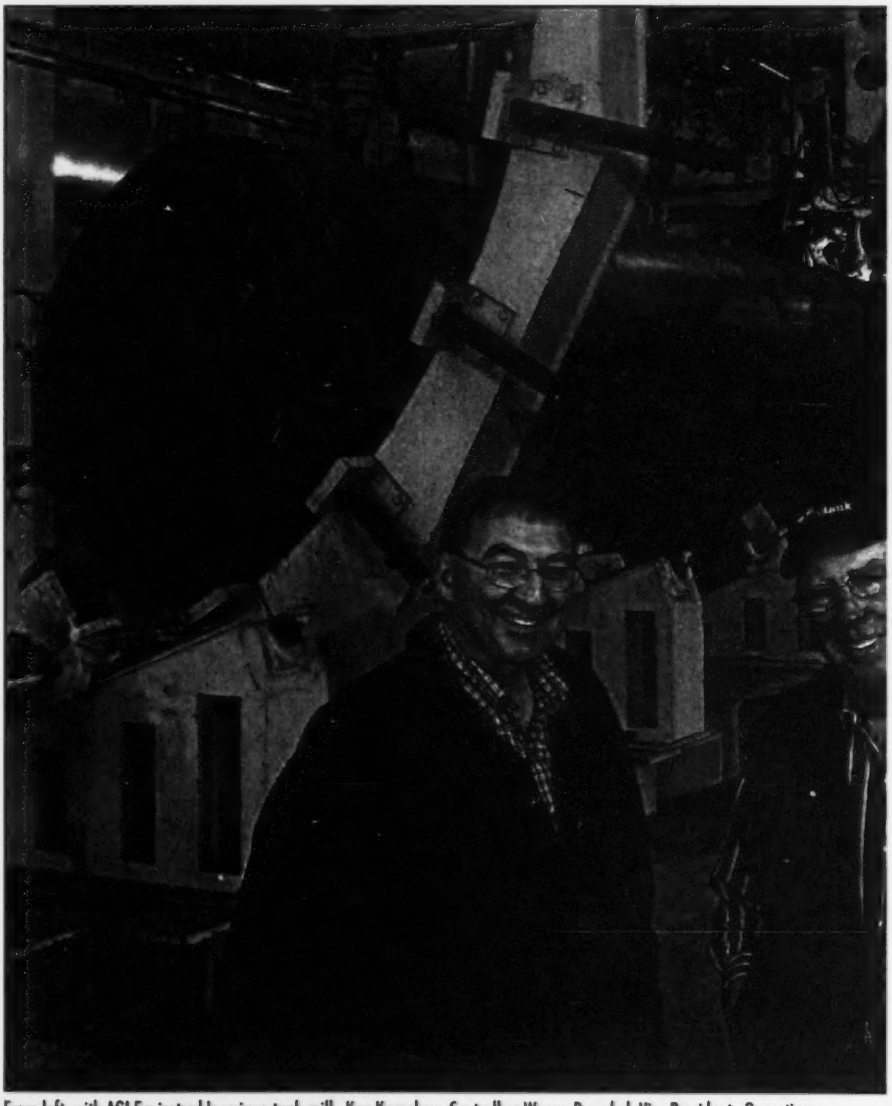
AGI's leadership team quickly discovered that the technology they were looking for didn't exist in the industry, so they decided to look for similar technology in other industries. They felt they could make modifications to meet their needs.

"We wanted a piece of equipment that provided us with additional capacity and allowed us to ensure our clients a very high quality, flawless product, as well as enabling us to produce our products faster and more efficiently," says Jeff Burton.

The team found that pipe manufacturing equipment was closest to what they needed, so in 2006-07 company representatives undertook an extensive search throughout North America, examining pipe mill manufacturing companies.

They eventually found a company they thought was a good fit for AGI. In 2008, they hired the organization to manufacture their mill.

The two companies worked well together and were able to manufacture the unique equipment within a year. It then took AGI another year for installation, so the new equipment went into production in 2009. Company officials have dubbed the modified product a "tank mill".



From left, with AGI Envirotank's unique tank mill - Ken Kernohan, Controller; Wayne Broeckel, Vice President - Operations; and David Burton, President and General Manager.

"It was a really exciting day for us when the tank mill arrived," remarks Burton.

He said it was especially memorable for his father, who has been working in the industry most of his life. According to Jeff, Dave had talked about creating a type of tank mill nearly 20 years before.

"He was kind of like a kid at Christmas when we got the machine. He took a stab at making one 25 years ago, but it didn't work out, largely because we didn't have access to the engineering capability we needed. The Internet changed all that. When we went looking this time we had much more ability to track down the right expertise."

AGI quickly found the mill to be very successful in creating higher quality tanks in a shorter time period.

"The mill's been in operation for the past six to eight months and the results have been amazing. We've been able to significantly increase our capacity, our quality—and our efficiency. There's not too many things in our business that enable you to do faster and better at the same time," he says.

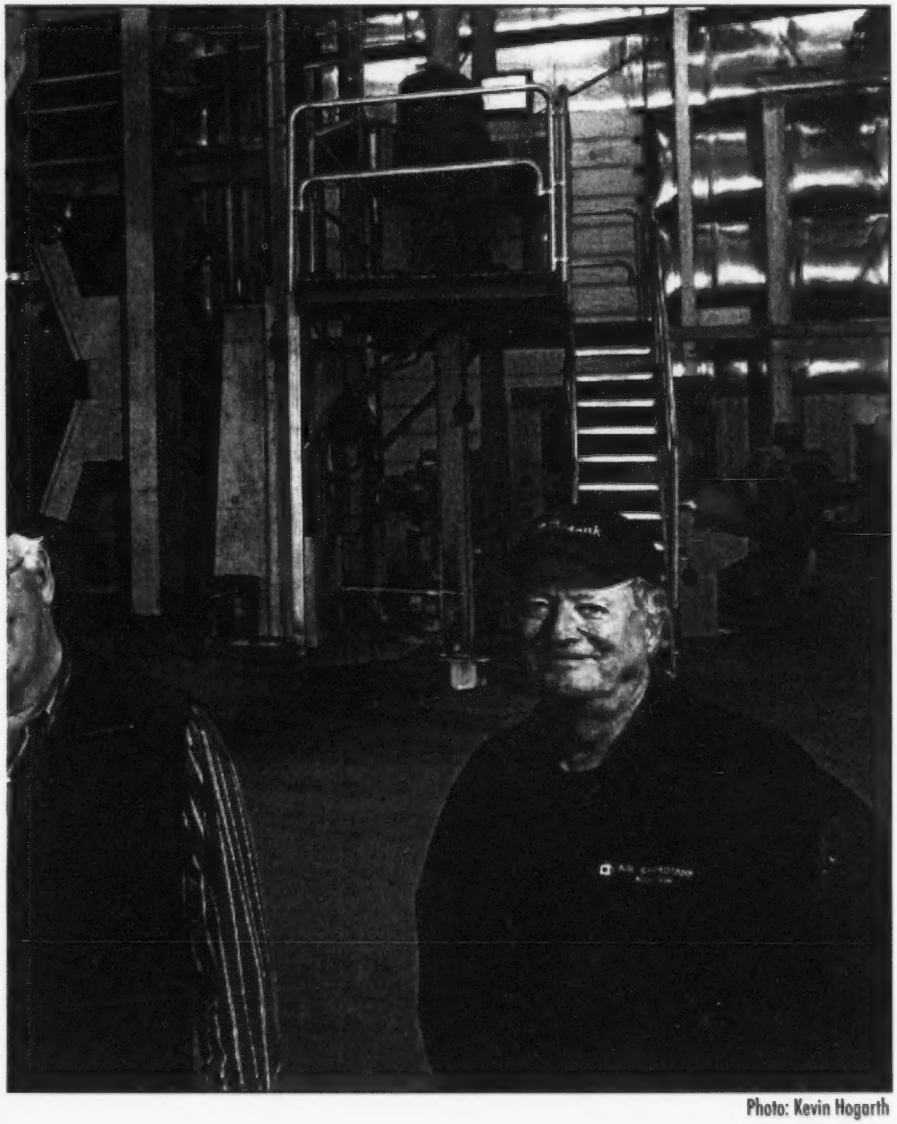


Photo: Kevin Hogarth

In December, AGI was contacted by a client about creating more than 60 tanks, each one 40 feet long and 12 feet in diameter. The client wanted the tanks by the end of January. In a traditional fabrication process, each tank typically takes about two weeks to manufacture. The project was tendered to a number of companies; the client believed they would need to use more than one company because the order was so large. However, because of the new mill, AGI was awarded the entire contract.

"We received the contract in mid-December, took two weeks off over Christmas and had the entire order completed by the end of January," says Burton.

AGI's tank mill can create cylinders with diameters larger than any other tank mill in North America. According to Burton, it has the ability to create cylinders whose diameters are more than twice as large as those created by the pipe mill used by Evraz (formely Ipsco) in Regina.

The mill incorporates a unique approach to tank construction. Rather than taking sheets of steel and rolling them, as is done by most tank manufacturing plants, the mill takes the sheets in a spiral right from the coil. This ensures a much quicker manufacturing process and yields a much higher quality product. The mill welds the tank and scans the welded seams using ultrasonic testing equipment as the tank is being constructed, ensuring flawless welds.

"I think we can argue correctly that our tanks are better than the industry average largely because of our welding process," said Burton.

Burton is already foreseeing significant growth in product sales; he expects that to increase as organizations become aware of the quality of product manufactured by the tank mill.

Synchrotron: Not Just for Big Business

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Thompson says the synchrotron is invaluable in identifying materials problems for industry, aerospace and the medical field.

"Even just looking at simple metals or residue, there could be trace elements that the company didn't expect," she says.

"The way it usually works elsewhere is that you can do industrial work but you have to do it yourself and figure out what it is you want to do. We try to talk to the clients very deeply in advance to make sure that we are doing the experiment that gives them the answer. We have a dedicated group of scientists who do the research. As the premiere synchrotron in the world for doing industrial research, we are also developing the methodology."

While an up to six-week waiting period is no real deterrent, Cutler says at first the $1,500 to $4,000 price tag per sample can deter small and medium enterprises (SMEs).

"For companies in Saskatchewan, especially new start-ups, we are saying, 'I've got a group of scientists and researchers whose job is to understand the synchrotron. Your job is developing new technologies or new product. You have the problem. We have the tools. Let's work together to help you solve that problem.'"

"The cost really depends on the client's question. In addition, this is not just the cost of the beam or experiment time," he says. "It includes staff time and discussions to determine what kind of sample or material will give us the optimal return on the client's dollar."

CLS Industrial Staff Scientist Jeff Warner explains CLS's efficient, thorough regimen.

"Once interest has been defined by the client, I talk to them in more detail to try to figure out exactly what we can do for them, schedule a date, acquire samples from them, do the measurements, write up a report, and then give them the report and ensure they are satisfied," he says.

Warner explains the power of that report. "Environmental regulations are always getting tougher," he said. "This is a very good technique that satisfies regulators because it delivers molecular-scale understanding. In the environment and mining sector, we have worked successfully with AREVA Resources Canada, Barrick, Teck, Mosaic and environmental service companies like Canada North."

Cutler and his team are eager to see more SMEs benefit from these resources.

"For companies in Saskatchewan, especially new start-ups, we are saying, 'I've got a group of scientists and researchers whose job is to understand the synchrotron. Your job is developing new technologies or new product. You have the problem. We have the tools. Let's work together to help you solve that problem.'

"A good example is we worked with Shutout Solutions which was using nano-silver within various types of detergents and bathwashes," adds Cutler. "They had a couple of product issues with the material they were receiving from their supplier. We used the synchrotron to help them understand the problem."

Realizing that many new businesses often "survive on credit cards and loose change in the seat cushions," Cutler says his team strives to find ways SME's can access the facilities affordably. The team works with companies to help them access the Industrial Research Assistance Program and other financial resources.

"We can be very creative in how we work with the SMEs," says Cutler. "It could range anywhere from sharing of intellectual property to them buying it outright or any flavour in between: just so that they can get access to this tool."

These tactics are succeeding. Synodon is developing an airborne natural gas pipeline leak detection system and Shutout has defined the nano-silver grade in its products, making a solution possible.

Cutler and his team are determined that an increasing number of SMEs will enjoy similar success.

"Saskatchewan is unbelievably innovative," concludes Cutler.

"I give this province a lot of credit being able to think outside the box and going after the CLS, InterVac and other state-of-the-art research facilities like Petroleum Technology Research Centre in Regina."

Want to Tour the Synchrotron?

Put on your walking shoes – sign up at

http://www.lightsource.ca/education/request_form.php

Let your eyes do the walking in a virtual tour at http://www.lightsource.ca/education/vr.php

Reed Security

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definition video surveillance, a technology that lets us identify faces and license plates on recorded video. Now instead of grainy pictures police can't use, we can actually help solve crime," Reed says.

The commitment to go the extra mile on behalf of clients is implicit in the company's motto—Excellence Takes Effort. "We never lose sight of that," Reed says with pride, although he is quick to acknowledge the contribution eight employees make every day. To keep everyone happy and motivated, Reed empowers his employees to make decisions and incorporates fun into the workplace, from staff barbecues to movie days when everyone goes out for lunch and a movie. "It's a way of showing appreciation, it builds morale, and it boosts productivity."

Reed's personal vision is behind it all.

"I worked for the largest security company in the world for two and a half years before I started Reed Security in 2000. But all along, I thought I could do some things differently and offer clients better solutions at a more affordable price." When his employer downsized and people were laid off, Reed acted quickly. "That gave me a ready-made workforce right out of the gate."

Reed laughs at his youthful enthusiasm; he was only 25 at the time. "What we failed to factor in was that we needed the sales to justify the salaries."

Thankfully, Peg and Les Leskewich, Reed's angel investors, didn't lose faith in his vision. Reed recently bought them out, but he remains grateful for their mentoring: "Now it's my turn to pay it forward." In that vein, he's been in discussions with some First Nations after an expression of interest in a joint venture security operation.

"I don't see expanding to locations outside Saskatoon right now," Reed says.

"Saskatoon is a great place. Costs are reasonably low. We can accomplish double the work in a day than we could in Calgary because driving and commuting time is minimal. And the economy is diversified and vibrant. Best of all, Saskatoon still isn't too corporate. It's our biggest city, but it still has the small-town Saskatchewan feeling where clients accept the concept of a work-life balance. It's a great place to be."

"Saskatoon still isn't too corporate. It's our biggest city, but it still has the small town Saskatchewan feeling where clients accept the concept of a work-life balance. It's a great place to be!"

Wilkie Economy

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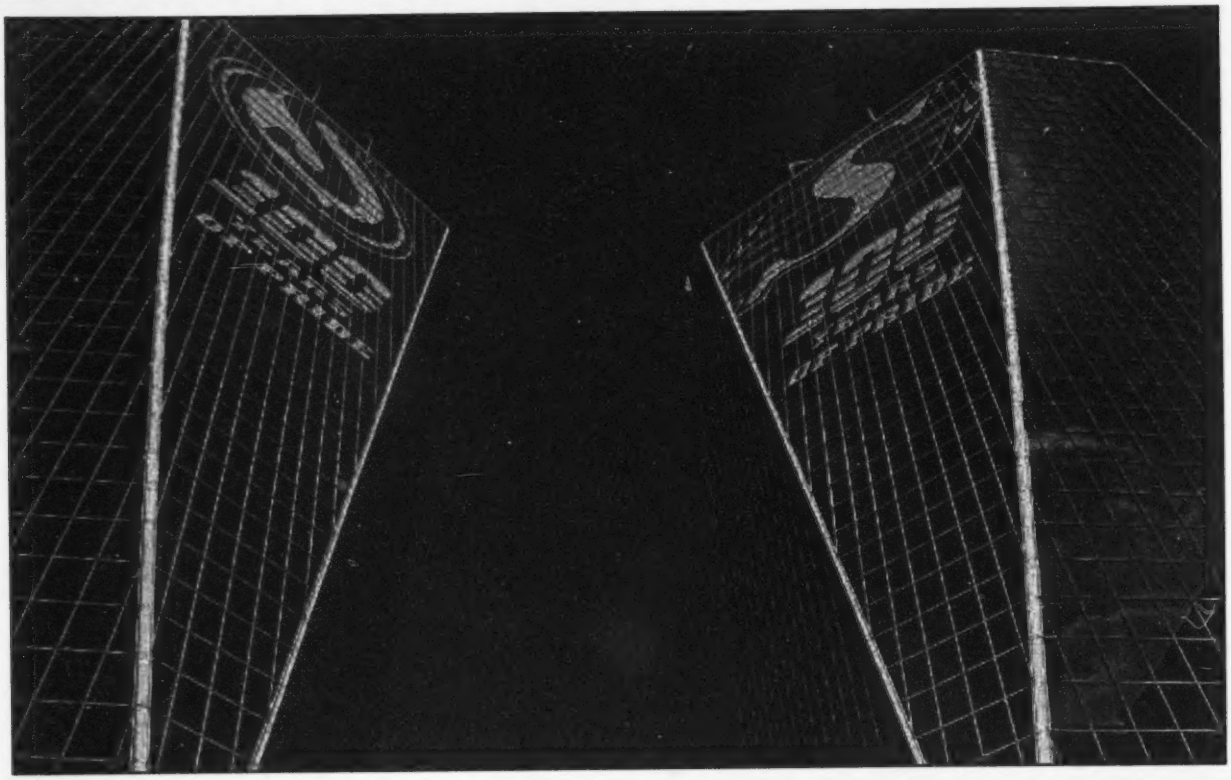
grain at the West Coast and typically used to create feed for British Columbia livestock. Opportunity for companies like West Central arose when the elevators began doing this type of screening locally.

West Central focuses on manufacturing feed pellets for the beef industry using whole grains, oilseed and pulse crops, as well as nutritious plant-based material from commercial cleaning and processing facilities. Skinner says inputs delivered to West Central are sampled and tested for major nutrients and then used to formulate specific beef rations; while various beef feed formulations constitute 90 per cent of West Central's products, the company also manufactures feed pellets for bison, horses, elk, deer and sheep. About half of the 100,000 tonnes of feed West Central produces each year goes to Alberta, with most of the rest sold in Saskatchewan and a small percentage in Manitoba.

Skinner says West Central's challenges include a publicly-subsidized competitor in North Battleford and the negative impact of the recession and high Canadian dollar on the beef industry. But the company has significantly grown its customer base over the last five years and now is involved in research into new feed ration formulations.

The story of West Central Pelleting is one of a community coming together to raise capital to build a facility that uses material grown in Saskatchewan to create Saskatchewan products and jobs, says Skinner.

"It was a unique way to start a business. It was something new and innovative."



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